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10/705,813	11/10/2003	Milind Kulkarni	28744-138 (MEMC3035.1)	5409

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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/705,813
Filing Date: November 10, 2003
Appellant(s): KULKARNI, MILIND

Michael G. Munsell
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed September 26, 2008 appealing from the Office action mailed March 31, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,117,402	Kotooka et al	9-2000

jp 63-008,291	Ueya	1-1988
jp-11-255577	Jp '577	9-1999
jp 11-043,396	Okubo	2-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1 to 6, 21 to 24, 47 and 48 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ueya (Jp 63008291) in view of Okubo (JP 11043396).

The Ueya reference teaches a seed puller and a method of growing a crystal. The apparatus consists of a chamber with a crucible. A melt is formed in the crucible. There is a means to pull of crystal form the melt and create a crystal ingot. There is a heater around the crucible. There is a second heater that is just above the melt to keep the melt at a set temperature, note the figures. The differences between the instant claims and the prior art are the area that the second heater covers and the elongated puller. However, The Okubo reference teaches an elongated puller and no cover on the melt, note, figure. It would have been obvious to one of ordinary skill in the art to modify the Ueya et al reference by the teachings of the Okubo reference to have an elongated puller and uncovered melt in order to pull larger crystals and allow gases to be removed. Also, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine the optimum, operable cover area of the second heater in the Ueya reference in order to effectively heat the melt at a constant rate.

Claims 7 to 17 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ueya (Jp 63008291) in view of Kotooka et al (6,117,402) and Jp (11-255,577).

The Ueya reference is relied on for the same reasons as stated, supra, and differs from the instant claims in the reflector and heater around the ingot. However, the Kotooka et al reference teaches heaters around the crystal, note figures and the Jp (11-255,577) reference teaches the reflector with a melt heater. It would have been obvious to one of ordinary skill in the art to modify the Ueya et al reference by the teachings of the Kotooka et al and Jp (11-255,577) reference in order to create the desired profile in the crystal.

Claims 25 to 46 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ueya (Jp 63008291) in view of Kotooka et al (6,117,402) and Jp (11-255,577).

The references are relied on for the same reasons as stated, supra, and differ from the instant claims in the control of the crystal growth. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine through routine experimentations the optimum, operable controls step in the combined references in order to grow the desired crystal as the conditions do affect the ingot.

(10) Response to Argument

Appellants' argument concerning the apparatus claims 1 to 6, 21 to 24 and 47 is noted. However, the apparatus of the prior art must only be capable of performing the

function or process set forth in the claims. Clearly, the apparatus of the Ueya reference can heat an uncovered melt portion at the top of the melt. The means are the same as instantly claimed and in the same place. Thus, the prior art reads on the instant apparatus and renders the amount of area covered by the heater obvious to one of ordinary skill. The reference clearly shows a means on top of the melt to heat the upper part of the melt. This meets the means to heat as is instantly claimed and the heater does allow gases to escape. The heating means is not and does not prevent gas escape as argued.

Appellants' argument concerning claim 1 has been considered and not deemed persuasive. The claim is an apparatus claim, not a method. The apparatus shown in the Ueya reference does have the heating means on top of the melt as claimed. At no point in the reference is there a teachings that the heater prevents off gas. The reference encompasses the melt with boric oxide to prevent the lose of arsenic, not impurities. Arsenic is very volatile and is not an impurity. The reference does not teach preventing off gases but an important element. The boric oxide is not part of the apparatus but part of the method of use. Further, the other references clearly teach processes where off gases are allowed to leave the melt.

Appellants' argument concerning the combination of references is noted. However, the Okubo reference teaches that when not using or growing GaAs, one does not need to cover the melt fully. Melt encapsulation is done for seed pulling process where one element is volatile at melt temperatures. The Okubo reference shows when growing silicon, one does not use boric oxide and allows for off gases. The combination

of references therefore, teaches the claimed apparatus, in which the melt does not need to be covered. Also, the references do not change the intended use.

Appellants' argument concerning claims 21 to 24 has been considered and not deemed persuasive. The combination of references teaches the placement of a heater as claimed on top of the melt. Then growing a single crystal from the melt. The combination teaches that depending on the material grown, using boric oxide. The combination teaches that the melt heater allows for off gases and the size of the heater would have been obvious to one of ordinary skill in the art in order to uniformly heat the melt and grow a more uniform crystal.

Appellants' argument concerning claim 47 is noted. The combination of references does teach the heating set up in the claim. The references do show upper and lower heaters, note figures in both references. The examiner has clearly and properly rejected the claim in view of the art.

Appellants' argument concerning claims 8 and 10 to 12 has been considered and not deemed persuasive. The references combined to reject these claims do in fact teach all limitations. The Kotooka et al applied against the claims does show reflectors with are insulators, not heaters. The combination of references teaches the heaters, lower upper and on top of the melt. It is noted, that appellants have not argued that these limitations are not found in the art, but merely argues that the terms do not appear in the rejection.

Appellants' argument concerning claims 17 and 19 is noted. The prior art does teach the instantly claimed limitations. The combination of references does in fact teach

the reflectors with the means to cool or heat the grown ingot. Again, appellants do not have not shown reasoning to combine references or that the limitations are not in the references.

Appellants' argument concerning the claims 25 to 46 has been considered and not deemed persuasive. The claims do not exclude the use of a covering melt. The specification when referring to the uncovered melt is referring to the area not covered by the seed crystal or ingot and lids. Thus, the prior art reference does and is pertinent to the instant invention and method claims. The prior art does teach heating parts of the uncovered melt that is referred to by applicants own specification. Also, the claims and the prior art have the same set up of apparatus, which would allow the gas escape. Further, appellants have not pointed out any feature not taught or render obvious by the instant claims.

Appellants' argument concerning claims 32 to 38 has been considered and not deemed persuasive. The examiner in the rejection stated the difference between the claims and the prior art to be obvious modifications of the art. Appellants have not shown that the conditions are not within the skill of the art. The operation of the heaters would have been obvious to one of ordinary skill in the art in order to create a uniform temperature in the melt increase the quality of grown crystal. There is no showing that this operation is not outside the skill of the art.

Appellants' argument concerning claims 39 to 43 is noted. Appellants have not shown or pointed out which limitation or limitations is not taught by the prior art.

Further, there is no showing as to why one would not combine references as set forth by the examiner.

Appellants' argument concerning claims 44 to 46 has been considered and not deemed persuasive. The examiner in the rejection stated the difference between the claims and the prior art to be obvious modifications of the art. Appellants have not shown that the conditions are not within the skill of the art. The operation of the heaters would have been obvious to one of ordinary skill in the art in order to create a uniform temperature in the melt increase the quality of grown crystal. There is no showing that this operation is not outside the skill of the art.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Robert Kunemund 1792

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